

**Remarks/Arguments:**

Claims 1-26 were originally presented in the application. Claims 1-26 have been rejected. This response cancels claims 1 and 17 amends claims 2-4, 6, 10, and 18-26. Thus, claims 2-16 and 18-26 remain pending in the application.

**Declaration**

A substitute declaration is attached, providing the full name of inventor Xi-Cheng Zhang, as requested by the Office Action. This substitute declaration in combination with the original declaration provides all of the required data. MPEP § 602.02.

**Information Disclosure Statement**

The applicants acknowledge the remarks in the Office Action regarding the Information Disclosure Statement. A Supplemental Information Disclosure Statement (IDS) has been or will be filed under separate cover, including a more legible copy of one of the references not initialed by the Examiner on the Form 1449 previously submitted with the first IDS, and a copy of U.S. Patent No. 5,952,818 which was referenced in the specification but not cited in the first IDS. The other reference not initialed by the Examiner on the Form 1449 previously submitted with the first IDS was a redundant reference that had been included elsewhere on the Form 1449. Accordingly, no additional copy of that reference is being provided.

**Drawings**

The drawings have been modified to add a lead line between reference character 13f and the beam splitter depicted in Figure 1, and to replace numeral 18 with numeral 34 in Figure 3 for consistency with the specification. These changes are consistent with the suggestions by the Examiner and therefore overcome the objections to the drawings.

### **Specification**

Paragraph [0044] has been amended to replace the term "photodetector" with – data processor— on page 10, line 27, and to eliminate the use of the trademarks COHERENT and MIRA in the description of paragraph [0046]. These changes are consistent with the suggestions by the Examiner and therefore overcome the objections to the specification.

### **Claim Objections**

Claim 10 has been amended to depend from claim 4. Accordingly, all of claims 10-13 now are in proper form, overcoming the objections set forth in the Office Action.

### **Claim Rejections**

The Office Action rejects claims 1, 3, and 17 under 35 U.S.C. § 102(e) as being anticipated by Eloy (U.S. Patent No. 6,275,045). The Office Action rejects the following claims under 35 U.S.C. § 103(a) as being unpatentable over Eloy in view of the additionally noted references: claims 2, 4-7, 10, 11, 18-20, 23, and 24 in view of Wu et al. (Applied Physics Letters, 67: 3523-3525, 1995), Nahata et al. (Applied Physics Letters, 69:2321-2323, 1996), and Cai et al. (Applied Physics Letters, 73:444-446, 1998); claims 8, 9, 12, 13, 21, 22, 25, and 26 in view of Nahata and Cai further in view of Mittleman et al. (U.S. Patent No. 6,078,047); and claims 14-16 in view of Nahata and Cai in further view of Onstott et al. (U.S. Patent No. 4,896,942). The applicants respectfully traverse all of these rejections.

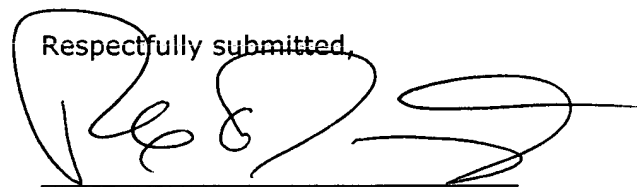
Claims 4 and 18 have been amended to be in independent form. All of the other claims in the application depend directly or indirectly from one of these claims. Claim 1 contains the limitation of "a chopper for modulating the *terahertz output pulses*" (emphasis added) and claim 18 contains the method step of "modulating the *terahertz frequency output pulse* with a chopper" (emphasis added). This is an important limitation of the applicants' invention. In rejecting claim 4, the Office Action cites Wu, Nahata, and Cai as each teaching the use

of a chopper. Each of these references teaches chopping the pump or probe beam, however, not chopping the *terahertz pulse*. This is an important distinction. The applicants are not aware of any system previously teaching chopping of the *terahertz pulse*. In fact, the applicants, who are leading researchers in the field of THz systems, worked for many months trying to produce a functional THz transceiver before discovering that chopping the terahertz pulse rendered the claimed system and method functional, after first determining that chopping the pump or probe beam was not acceptable. See enclosed Declaration of Xi-Cheng Zhang. Chopping the terahertz pulse and using a terahertz transceiver rather than a separate emitter and detector enable the use of a normal (non-angled) orientation between the terahertz beam and the target in a reflected geometry, which is an advantageous orientation for a number of applications.

Because none of the references, alone or in combination, teaches chopping the *terahertz pulse*, the cited combination of references fails to teach each and every limitation of the claimed invention. Accordingly, the applicants respectfully submit that all of the claims should be allowed.

### Conclusions

The applicants respectfully submit that this response overcomes each of the objections and rejections set forth in the Office Action and that the application should now be allowed. The Examiner is invited to call the applicants' undersigned representative, however, if any further amendment will expedite the prosecution of the application or if the Examiner has any suggestions or questions concerning the application or the present Response or its enclosures.

Respectfully submitted,  


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Attachments: Figures 1 and 3 (2 sheets)  
Substitute Declaration and Power of Attorney  
Declaration of Xi-Cheng Zhang

Dated: June 27, 2003

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The Commissioner for Patents is hereby authorized to charge payment to Deposit Account No. 18-0350 of any fees associated with this communication.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to: Mail Stop Non-Fee Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on:

June 27, 2003  
Ruth Curran

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